ASOS MODIFICATION NOTE 51 (for Electronics Technicians)
Engineering Division
W/OSO321:WW/WDW
Revision Date: 09/21/99

SUBJECT	:	Class I Automated Surface Observing System (ASOS) Solid-State Time Delay Relay (SSTDR) for the Acquisition Control Unit (ACU)
PURPOSE	:	The addition of an SSTDR ensures a proper reset of the Class I ACU ASOS system (*system without an Uninterruptible Power Supply (UPS)*) during a loss of power.
EQUIPMENT AFFECTED	:	ASOS Class I ACU
PARTS REQUIRED	:	Modification Kit: S100-Field Modification Kit (FMK) 077A (Class I ACU)
MOD PROCUREMENT:		The above FMK will be initial issue by Washington Central Support and is required for all Class I ASOS sites.
EFFECTIVITY	:	All Class I ACU ASOS sites without a UPS installed.
SPECIAL TOOLS REQUIRED	:	None
TIME REQUIRED	:	1.5 hours per SSTDR
EFFECT ON OTHER INSTRUCTIONS	:	Engineering Modification Note 47 and 50 must be completed prior to, or in conjunction with, this modification.
AUTHORIZATION	:	This modification is authorized by ECP **E985M05F187C**.
VERIFICATION STATEMENT	:	This modification was tested for operational integrity at the operational test and evaluation (OT&E) sites listed in appendix A.

GENERAL

This modification note provides procedures to install an SSTDR in the Class I ASOS ACU (UPS is not installed). When a loss of power occurs, the SSTDR will delay the activation of the Class I system for 3 seconds. This ensures a proper reset of the ASOS's radio frequency modem(s), pressure sensors, and power supplies.

PROCEDURE

The following instructions are for installation of the SSTDR in the Class I ACU. If installing Modification 47, 49, and 50 at the same time, complete steps 2 through 7 of the installation procedures.

BEFORE INSTALLATION OF THE SOLID-STATE TIME DELAY RELAY

1. Ensure the FMK has all the parts listed in appendix B.

2. Contact the ASOS Operations and Monitoring Center (AOMC) at 1-800-242-8194 and provide notification on which ASOS will have the SSTDR(s) installed.

3. Get approval of the responsible MIC/OIC/Observer before starting installation. The SSTDR may be installed on any day of the month if the restrictions in steps 3 and 4 are satisfied.

4. **Commissioned sites only:** Do not start installation during inclement weather, precipitation, instrument flight rule conditions, or if any of those conditions are expected within 3 hours. The responsible MIC/OIC/Observer will define those meteorological conditions.

5. Do not start the SSTDR installation at a time that will conflict with scheduled synoptic observations at 00, 03, 06, 09, 12, 15, 18, and 21Z. Although 1.0 hour ***per*** SSTDR should be sufficient, allow 1.5 hours ***per*** SSTDR to complete installation and restart the ASOS.

6. Immediately before beginning work at National Weather Service (NWS)-staffed sites, the MIC/OIC/Observer will inform the air traffic control tower (ATCT) and any other critical users the ASOS will be shut off for SSTDR(s) installation (for unstaffed sites, the electronics technician will inform the ATCT).

7. Do not begin the installation process until immediately after an hourly observation has been transmitted. At NWS-staffed sites, normal back-up observing procedures will be implemented.

8. Make the appropriate SYSLOG entries, (MAINT-ACT-FMK) Mod 51.
   a. Log on as **TECH**.
   b. Key the **MAINT** screen.
   c. Key the **ACT** page.
   d. Key **START** - Stop here and perform “INSTALLATION OF THE SOLID-STATE TIME DELAY RELAY.”

INSTALLATION OF THE SSTDR INTO THE ACU

A. Class I ACU SSTDR:

WARNING

Ensure the AC power is completely removed from the ACU. Death or severe injury may result if power is not completely removed from the ACU prior to installing the SSTDR.

1. Remove AC facility power from the ACU.

2. Open the rear door to the ACU.

3. Locate the Din Rail that supports the power distribution block (PDB), 1A7.

4. Install the SSTDR bracket on the Din Rail to the right of the PDB.

5. Install the SSTDR on the bracket using the #1 phillips machine screw.

6. Locate and disconnect wires 1A7-18C and 1A7-23A. Cap and tie the wires back.

7. Connect the following wires between the SSTDR and PDB, 1A7: (Use figures 1 and 2 on the following pages for reference) It may be easier to connect the wire if the Din Rail is removed from the shelf. Remove the screws at either end of the Din Rail.

Note:

When making connections to the PDB, ensure the wires are not inserted too far into their terminals. If this occurs and the terminal screw is tightened down, the wire insulation may prevent the contact from taking place.

Note:

Check each connection made to the PDB by giving a slight tug on each wire.

From W138 Wire Harness		To Location on the PDB	ACU Wire Number
Gauge + Color	Wire Number		
14GRY	1A7K1-1 (COM)	1A7-18B	ACU W #1
14WHT	1A7K1-2	1A7-18C	ACU W #2
14GRY	1A7K1-3	1A7-19B	ACU W #3
14GRY	1A7K1-4 (N.O.)	1A7-23A	ACU W #4

8. Reinstall the Din Rail when wiring is completed.

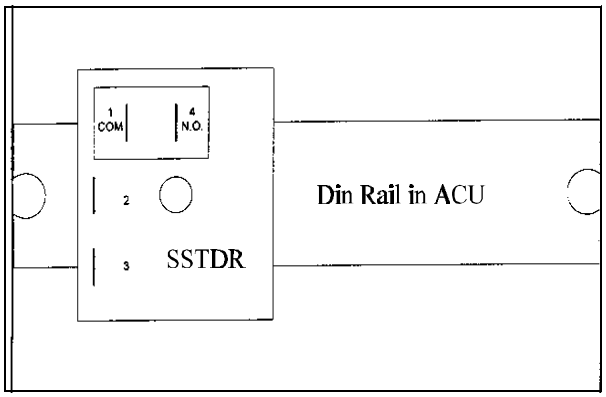

Figure 1 SSTDR on the Din Rail

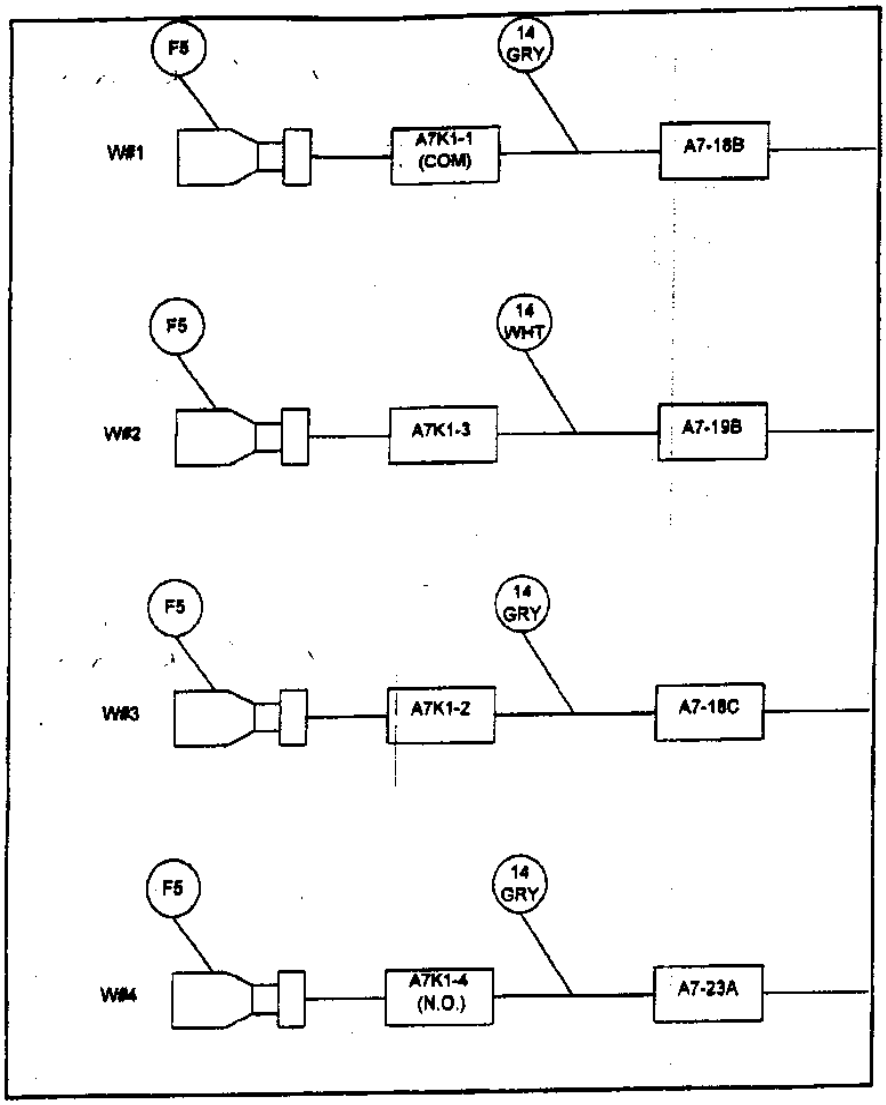

Figure 2 General Wiring Diagram

Note:
When facility power is reapplied to the ACU, there will be approximately a 3-second delay until the ACU begins to run.

9. Reapply AC facility power to the ACU.

10. Proceed with the "VERIFICATION PROCEDURE FOR THE CLASS I ACU SSTDR."

VERIFICATION PROCEDURE FOR THE CLASS I ACU SSTDR

1. Return to the operator interface device and log on as **TECH**.

2. Proceed to the 12-Hour page (**REVUE**-**SENSOR**-**12-HR**) and ensure data is being collected from the sensors. Key **EXIT**.

3. Proceed to the maintenance pages (**MAINT)** and clear all failures for the ACU and DCP that were caused by powering the system down.

4. When complete, key **EXIT**.

5. Proceed with the "AFTER INSTALLATION OF THE CLASS I ACU SSTDR."

AFTER INSTALLATION OF THE CLASS I ACU SSTDR

1. Call the (AOMC) at 1-800-242-8194 and inform the operator of:
   a. Your location.
   b. The installation of the SSTDR has been completed.

2. Enter in the SYSLOG that maintenance has been completed.
   a. Key the **MAINT** screen.
   b. Key the **ACT** page.
   c. Key **FMK** - Enter the FMK number as follows: **Mod 51**.
      Press **ENTER**. On the second line of the screen, verify that only Mod 51 is displayed. Complete by entering **Y** in the [Y/N] area if only Mod 51 is displayed. If other modifications are completed, make appropriate log entry.
   d. Check the SYSLOG and verify the FMK message. Enter a comment in the SYSLOG stating the SSTDR has been installed.

REPORTING MODIFICATION

Target date for completion of this modification is 30 days for commissioned sites and 45 days for non-commissioned sites, after the receipt of parts. Report completed modification on a WS Form A-26, Maintenance Record, appendix B, using the instructions in Engineering Handbook No. 4 (EHB-4), Engineering Management Reporting System (EMRS), part 2, appendix F. Report the modification to the ACU using the equipment code **AACU** in block 7. Record a modification number of **51** in block_17a of the A-26.

Original Signed

John McNulty
Chief, Engineering Division

Appendix A - Test Sites
Appendix B - Parts List
Appendix C - A-26

W/OSO321:BWhisel:713-1833x156:Updated:9/20/99
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The OT&E sites for the Solid State Time Delay Relay are:

SID	CITY	STATE	Class of System (Class I or II)	Solid State Time Delay Relay (Qty)
DUG	Douglas Bisbee	CA	Class I	1
THV	York	PA	Class I	1

S100-FMK077A ACU Solid-State Time Delay Relay	
Quantity	**Nomenclature**
1	W138 Wire Harness
1	Insulated quick disconnect female crimp-on terminal
1	Solid State Time Delay Relay (SSTDR)
1	Stick on diagram: A7 K2, K3 & XK3 UPS BYPASS ONLY
1	A7K1-4 label
12	3-1/2" long wire tie wraps
1	8-32 X 1-1/4" pan head #1 phillips machine screw
1	3 screw terminal block
1	SSTDR bracket

A-26 (EMRS)